

USSN 09/716,041
Atty. Docket No. 2000-0086-13

LISTING OF ALL CLAIMS AS AMENDED

1. (previously amended): A grating based line narrowing device for line narrowing a laser producing high energy laser beams, said device comprising:

- (A) a grating defining a grating face,
- (B) a chamber for housing at least said grating,
- (C) a helium source for providing a helium purge for purging said chamber,
- (D) a beam expanding means for expanding a beam from said laser to produce an expanded beam,
- (E) a tuning means for directing said expanded beam onto the grating face in order to select from said expanded beam a desired range of wavelengths.

Wherein said expanded beam heats said grating face producing a temperature increase in said grating face which in turn heats the helium purge gas in a hot purge gas layer adjacent to said grating face, and further comprising a purged gas manifold for directing helium purge gas across the grating face to remove said purge gas layer to reduce optical distortion caused by said hot purge gas layer.

2. (previously canceled): A device as in Claim 1 wherein said expanded beam heats said grating face producing a temperature increase in said grating face which in turn heats purge gas in a hot purge gas layer adjacent to said grating face, and a heat removal means for removing heat from said purge gas layer to reduce optical distortion caused by said hot purge gas layer.

3. (previously canceled): A device as in Claim 2 wherein said heat removal means comprises a purge gas manifold having a plurality of small ports for directing purge gas across the grating face.

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4. (previously amended): A device as in Claim 1 wherein said heat removal means comprises a grating purge gas flow control means for controlling purge gas flow across the grating face.

5. (original): A device as in Claim 4 wherein said purge gas flow control means comprises structures defining a flow path across said grating face and then away from said grating face.

6. (previously amended): A device as in Claim 1 wherein said manifold has at least one long very narrow slot.

7. (original): A device as in Claim 6 wherein said slot is in the form of a long rectangular shaped nozzle.

8. (previously amended): A device as in Claim 1 wherein said helium purge gas flow through said manifold is less than 20 liters per minute.

9. (original): A device as in Claim 1 wherein said helium purge gas flow is about 2 liters per minute.

10. (original): A device as in Claim 1 and further comprising a vacuum pump for creating a vacuum in said chamber.

11. (original): A device as in Claim 10 wherein said vacuum is a pressure of about 1 to 10 millibars.

12. (original): A device as in Claim 10 wherein said vacuum is chosen so that gas molecules inside said chamber have a mean free path of between 5 cm and 30 cm.

13. (original): A device as in Claim 1 and further comprising a feedback grating curvature control mechanism for providing active control of curvature of said grating face.

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14. (original): A device as in Claim 1 and further comprising a fan and at least one manifold configured to force a flow of helium gas across the grating face.

15. (canceled): A method of bandwidth control of a narrow band gas discharge laser having a grating based line narrowing unit with a grating defining a grating face comprising the step of forcing a flow of helium gas across said grating face.

16. (canceled): The method as in Claim 1 wherein said gas flow is less than 20 liters per minute.

17. (canceled): The method as in Claim 16 wherein said gas flow is between 1 and 8 liters per minute.

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Applicants now believe that the application is in condition for allowance and respectfully request that a timely Notice of Allowance be issued by the Examiner.

Applicants do not believe that any fees are due in connection with this Response. However if any fees are due, the Commissioner is authorized to charge any additional fees or to credit any overpayments to Cymer, Inc.'s Deposit Account No. 03-4060.

Respectfully submitted,



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